

TOP SECRET 250134Z

1963 JUL 25 11 03Z

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Grace (File)

SUBJECT: CAMERA INFORMATION FOR MISSION 9057.

A. THIS PHOTOGRAPHY INVOLVES THE USE OF EIGHT CAMERAS: TWO MAIN CAMERAS, FOUR HORIZON CAMERAS, STELLAR CAMERA AND AN INDEX CAMERA.

B. OPERATIONAL FOCAL LENGTHS

	FWD UNIT	AFT UNIT
(1) MAIN LENS	609.602 MM	609.602 MM
(2) PORT HORIZON LENS	89.50 MM	89.20 MM
(3) STARBOARD HORIZON LENS	NOT AVAILABLE	89.55 MM
(4) STELLAR CAMERA	83.62 MM	
(5) INDEX CAMERA	38.35 MM	

Declassification Review by
MNGA/DoD

DEFINITION: "OPERATIONAL FOCAL LENGTH" IS DEFINED AS THE DISTANCE FROM THE MAIN LENS NODAL POINT TO THE FILM SURFACE AS MEASURED ON THE LENS BENCH, AND THE DATA REDUCED FOR A VACUUM CONDITION. (OPERATIONAL FOCAL LENGTH IS EQUIVALENT FOCAL LENGTH CORRECTED FOR ENVIRONMENT).

C. LENS DISTORTION (PIN CUSHION)

	FWD UNIT	AFT UNIT
(1) MAIN LENS		
3 DEGREES	.005 MM	.005 MM
2 DEGREES	.003 MM	.004 MM
1 DEGREE	.001 MM	.000 MM

TOP SECRET

GROUP 1
Excluded from automatic
downgrading and
declassification

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Ø DEGREE	.000 MM	.000 MM
359 DEGREES	.001 MM	.000 MM
358 DEGREES Q	.003 MM	.001 MM
357 DEGREES	.003 MM	.004 MM

(1) PORT HORIZON CAMERA

(RADIAL DISTORTION)

10 DEGREES	.003 MM	.005 MM
20 DEGREES	.026 MM	.036 MM

(TANGENTIAL DISTORTION)

MAXIMUM VECTOR	NOT AVAILABLE	NOT AVAILABLE
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(3) STARBOARD HORIZON CAMERA

(RADIAL DISTORTION)

10 DEGREES	.007 MM	.008 MM
20 DEGREES	.051 MM	.058 MM

(TANGENTIAL DISTORTION)

MAXIMUM VECTOR	NOT AVAILABLE	NOT AVAILABLE
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D. DEPRESSION ANGLES OF HORIZON CAMERAS RELATIVE TO NOMINAL MAIN CAMERA.

(1) FWD UNIT

- A. PORT HORIZON CAMERA - 15 DEGREES 15' 10"
- B. STARBOARD HORIZON CAMERA - NOT AVAILABLE

(2) AFT UNIT

- A. PORT HORIZON CAMERA - 15 DEGREES 23' 30"
- B. STARBOARD HORIZON CAMERA - 14 DEGREES 37' 30"

E. FILTER AND EXPOSURE DATA

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	FWD UNIT	AFT UNIT
(1) MAIN CAMERAS		
FILTER	WRATTEN 21	WRATTEN 21
APERTURE	F 3.5	F 3.5
SLIT WIDTH	.200 INCH	.200 INCH
(2) PORT HORIZON CAMERAS		
FILTER	WRATTEN 25	WRATTEN 25
APERTURE	F 6.8	F 6.8
EXPOSURE	1/100 SEC	1/100 SEC
(3) STARBOARD HORIZON CAMERAS		
FILTER	WRATTEN 25	WRATTEN 25
APERTURE	F 6.8	F 6.8
EXPOSURE	1/100 SEC	1/100 SEC
(4) STELLAR		
FILTER	NONE	
APERTURE	F 1.9	
EXPOSURE	2 SEC	
(5) INDEX CAMERA		
FILTER	WRATTEN 21	
APERTURE	F 4.5	
EXPOSURE	1/500 SEC	

F. RESOLUTION CAPABILITIES

(1) MAIN LENS

A. FWD UNIT - 196 (L/MM AVG)

B. AFT UNIT - 170 (L/MM AVG)

(2) PORT HORIZON CAMERA

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- A. FWD UNIT - NOT AVAILABLE
- B. AFT UNIT - 34.4 (L/MM AVG)

(3) STARBOARD HORIZON CAMERA

- A. FWD UNIT - NOT AVAILABLE
- B. AFT UNIT - 33.3 (L/MM AVG)

(4) INDEX CAMERA - 88 (L/MM AWAR)

G. TIMING MARKS

FREQUENCY MARKS WILL APPEAR ON THE FILM. RATE OF TIMING MARKS WILL BE 200 CYCLES PER SECOND.

H. FILM DATA

- 1. MAIN CAMERAS - SO 132
- 2. HORIZON CAMERAS - SO 132
- 3. STELLAR CAMERA - SO 130/SO 102
- 4. INDEX CAMERA - SO 130

I. CALIBARATED ANGLES OF CAMERAS

- 1. CALIBRATED CONVERGENT ANGLE OF MAIN CAMERAS - 29 DEGREES 57.3 MIN.

- 2. CALIBRATED ANGLE BETWEEN STELLAR AND INDEX CAMERAS - NOT AVAILABLE

3. STELLAR

X EQUALS PLUS .191 MM

Y EQUALS PLUS .045 MM

NOTE: VIEWING POSITIVE, EMULSION UP, COORDINATE SYSTEM IS DEFINED AS PLUS "Y" IS IN DIRECTION OF FLIGHT. PLUS "X" IS

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TO THE LEFT AND PERPENDICULAR TO LINE OF FLIGHT.

4. INDEX

X EQUALS MINUS .011 MM

Y EQUALS MINUS .016 MM

NOTE: VIEWING POSITIVE, EMULSION UP, PLUS "X" IN DIRECTION OF FLIGHT AND MINUS "Y" TO THE RIGHT AND PERPENDICULAR TO DIRECTION OF FLIGHT.

J. IMAGE MOTION COMPENSATION DATA

1. RAMP DATA (30 MINUTE DURATION)

RAMP NO. 3

FWD UNIT	BEGINNING	END
CYCLE PERIOD (SEC)	5.40	2.52
IMC RATE (" / SEC)	.375	.803
SCAN RATE (" / SEC)	27.93	59.84

AFT UNIT

CYCLE PERIOD (SEC)	5.39	2.59
IMC RATE (" / SEC)	.375	.781
SCAN RATE (" / SEC)	27.98	58.22

RAMP NO. 8

FWD UNIT

CYCLE PERIOD (SEC)	5.02	2.52
IMC RATE (" / SEC)	.403	.803
SCAN RATE (" / SEC)	30.04	59.84

AFT UNIT

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CYCLE PERIOD (SEC) 01 2.51

IMC RATE (" / SEC) .404 .806

SCAN RATE (" / SEC) 30.10 60.08

RAMP 3 PASSES

1A1 1A2 2A1 2D1 6D1 6D2 6D3 7D1 8D1 9D1 9D2 18A1

18D1 21D1 23D1 23D2 24D1 25D1 25D2

RAMP 8 PASSES

35A1 35D1 35D2 36D2 36D2 37D1 37D2 38D1 38D2 39D1

39D2 41D1 41D2 44A1 44A2 46A1 50A1 51D1 52D1 54D1

55D1 56D1 57D1 65A1 65D1

K. PROGRAM TIME DATA (NOTE 1)

PASS	CAMERA ON TIME			PROGRAM ON TIME	PROGRAM
----	(ZEBRA TIME)			UP RAMP	DURATION
	DAY	HOUR	MIN.	(SEC)	(SEC)
1A1	19	01	12	305	127
1A2	19	01	15	480	98
2A1	19	02	44	403	128
2D1	19	02	55	1064	115
6D1	19	08	54	1087	90
6D2	19	09	01	1489	137
6D3	19	09	16	NOTE 2	134
7D1	19	10	31	1536	286
8D1	19	12	01	1494	290
9D1	19	13	31	1514	322
9D2	19	13	38	1934	108

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18A1	20	02	53	758	148
18D1	20	03	03	1404	174
21D1	20	07	39	1658	121
23D1	20	10	34	1355	165
23D2	20	10	38	1597	333
24D1	20	12	06	1411	519
25D1	20	13	39	1557	350
25D2	20	13	47	2036	124
35A1	21	04	35	1097	118
35D1	21	04	40	1400	116
35D2	21	04	44	1639	170
36D1	21	06	10	1387	100
36D2	21	06	16	1733	212
37D1	21	07	46	1701	135
37D2	21	07	52	2073	104
38D1	21	09	15	1632	201
38D2	21	09	19	1876	270
39D1	21	10	46	1633	135
39D2	21	10	49	1814	136
41D1	21	13	47	1648	240
41D2	21	13	51	1924	86
44A1	21	18	02	723	126
44A2	21	18	06	927	98
46A1	21	21	07	967	117

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50A1	22	03	07	907	142
51D1	22	04	47	1473	109
52D1	22	06	22	1756	254
54D1	22	09	25	1749	478
55D1	22	10	55	1672	295
56D1	22	12	23	1656	320 (NOTE 3)
57D1	22	13	55	1794	109
65A1	23	01	41	793	372
65D1	23	01	54	1544	179

NOTE 1 DATE IS THE SAME FOR BOTH THE MASTER AND SLAVE UNITS.

NOTE 2 PASS 6D3 OCCURRED PRIOR TO START OF RAMP.

NOTE 3 INDICATION THAT FILM SUPPLY WAS DEPLETED DURING PASS 56D1

L. REMARKS:

DATA LISTED AS "NOT AVAILABLE" WILL BE SENT ASAP.

M. TIME CORRELATION (READINGS IN MILLISECONDS)

PASS	SYSTEM TIME	CLOCK TIME	DIFFERENCE
L	474.358	518281.850	
09	47594.708	28531.305	PLUS 0.016
24	42618.641	109955.254	PLUS 0.016
40	43065.030	196801.644	PLUS 0.001
56	43469.980	283606.624	PLUS 0.030

T O P S E C R E T

END OF MESSAGE

25X1